TUBERCULOSIS AND THE WAR

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How much will tuberculosis make for inefficiency in the Army? Will the war actually increase the amount of tuberculosis? What does the government intend to do with its tuberculous soldiers? All are questions of present interest.

There is no disease which could make for greater inefficiency among soldiers for the reason that it is distinctly a disease of young adult life, and, developing insidiously, makes the individual incapable of performing his duties without his recognition of the cause. It is evident, therefore, that it is worth while endeavoring to spot it early so that the tuberculous soldier may be dealt with according to his condition; relieved from duty if unfit and put into a selected position if capable of carrying it off without danger to himself or others. To accomplish this has required a very large corps of extremely expert examiners capable not only of diagnosticating the case, but also of judging what might be expected of it. For an army of 3,000,000 men, 400 to 500 such examiners have been found necessary.

We were fortunate at the beginning in having a number of physicians sufficiently expert in tuberculosis that, though they had never examined men with the requirements of the army before them, they were capable of doing it with a certain degree of efficiency. More fortunately, however, than even our possession of these civilian experts, we had at the head of the tuberculosis work in the army a man who had never spared himself in its study, and when the war broke out, he was a master in the technique of diagnosis and his capability in demonstrating it to others was very marked.

Colonel Bushnell, of whom I speak, was the Medical Chief of Fort Bayrad Sanatorium for about twenty years. Here his opportunity for the study of the disease was unrivaled and he took advantage of it. Instead of sitting down in what could have been made an easy berth, he astonished his acquaintances by his extraordinary initiative and industry. Friends of his state that while others were

enjoying evening recreation he was still in the wards with stethoscope in ears listening for "adventitious sounds." Rarely is good work done in vain, and Colonel Bushnell's has proved no exception. A time came with the outbreak of the war when the care and study put on his cases for years were made to count in the production of what we hope and expect will be the most efficient army ever put in the field. No man at the head of a department of the United States Government was more fitted for his particular task. He was a trained soldier, accustomed to giving orders and capable of seeing them carried out; he was a trained technician in the art in which it was necessary to rapidly train others; and he understood just what constituted army fitness.

While the first of the recruits were being trained, civilian examiners throughout the country were allowed and encouraged to do the best they could, the Surgeon General's Office endeavoring with the small corps of special experts at its disposal to review their work. In addition, with the knowledge of what was required and the realization that those requirements were not sufficiently well understood, the Surgeon General's Office issued Circular No. 20 prepared by Colonel Bushnell for the purpose of standardizing the diagnosis of tuberculosis.

To support and explain this important standardization, Colonel Bushnell, though sixty-five years old, had divided himself between his office in Washington and the even more arduous work of visiting the camps and attending medical meetings in addition to writing for numerous journals. Though everyone recognized the importance of standardizing the diagnosis, some thought this standardization too absolute and it required time and patience to educate them up to certain new ideas which he had been instrumental in either discovering or promulgating. Yet after thoroughly understanding Bushnell's methods and the enthusiasm for them in general, Surgeon Lawrason Brown and Major Joseph Pratt, who were among the early examiners (*The Military Surgeon*, August, 1918) say, "The great value of Colonel Bushnell's instructions was manifest daily in out work and we would have been hopelessly engaged in argument had we not possessed them." And again, "We cannot praise too highly Bushnell's rapid auscultatory method in tuberculosis examinations."

To complete this work begun by Circular No. 20 and furthered

by Colonel Bushnell's addresses and writings, special tuberculosis schools have been opened in which physicians with more or less knowledge of tuberculosis are further instructed. The original teachers in these schools, themselves experts, were instructed under his personal supervision in the Walter Reed Hospital in Washington and it is this instruction which they are now passing along. There is no disease in medicine requiring more capability in diagnosis, yet through methods for which Colonel Bushnell is considerably responsible, this capability is being imparted to a number of physicians with comparatively little experience in so thorough a fashion that it is evident if more active tuberculosis exists after the war there will be a much larger number of physicians to cope with it.

Previous to the war, the United States stood among the first in its anti-tuberculosis work and its tuberculosis mortality was among the lowest of the nations. Regretfully though we may say it, the mortality in France was among the highest, as can be seen from the following statistics of Fishberg; the death rate in Rio de Janeiro is 402 per 100,000; in Philadelphia, 206; in Chicago, 162; in Paris, 374. In addition, therefore, to having little or no time at the beginning to make examinations, France had actually more tuberculosis. It is to be expected, therefore, that a much larger number of her soldiers were sent back from the front than will be of ours, yet according to Colonel Dercle (*The Military Surgeon*, June, 1918) during the first three years of the war, only 89,430 were discharged from the French army for this disease. Of course it is to be remembered that her army had been under arms for years and was to a considerable extent picked and chosen before the war. Still, considering that we have so much less tuberculosis in our population, and the greater time we had for examinations together with the fact that in the first three years France probably had six million men in the field, it is evident that our tuberculosis inefficiency will be minimal.

Will the war actually increase the amount of tuberculosis? The strenuosity of the life in training, and especially in the trenches, is such that tuberculosis ready to become active is almost sure to break down, yet Colonel Bushnell's work has been so thorough that I personally believe the number of reactivations is going to be small. Moreover, it is evident from even our small experience so far that the routine open air life of training will cure, and has already cured,

a certain number who would probably have gone on to a breakdown in their civilian occupation.

The "bug bear" of the popular mind is the possibility of contagion, but from a scientific aspect is so remote as to scarcely deserve consideration. We now know that the great majority of tuberculous infections, even when first manifest in adult life, were contracted during childhood and that the adult is only slightly susceptible to contagion. In addition, the examinations are so carefully made that though we can imagine a small number of active cases slipping through, this number will be so small and the number with tubercle bacilli in the sputum which would be necessary for contagion, so much smaller still, that this question is negligible.

It is probable, however, that the increased work necessarily put on the civilians remaining behind will reactivate a number of cases which would have remained inactive if the war had not occurred. Between the activities of the camp, therefore, and the increased activities of civil life, in other words, through the instrumentality of the war, the number of cases of tuberculosis will be undoubtedly increased. Regretfully, therefore, it has to be confessed that tuberculosis will be a greater problem after the war than before it.

Without fear that tuberculosis will be a real menance to our fighting efficiency, we have still the question before us—What does the government intend to do for the thousands of men whose disease does become reactivated while serving their country? Though every effort is being made, as we have just shown, to have this number as small as possible by care in examination, the elimination of the unfit, and the proper selection of positions for the suspicious, the smallest number we can conceive will still be more than 20,000 or 30,000. The question is easily answered and with satisfaction, for no nation has ever attempted a more elaborate scheme for the rehabilitation of the sick and wounded.

In spite of the fact that the most important work at the present time is the winning of the war, and everything else must give way to it, an independent department of reconstruction has been inaugurated by the Surgeon General with Col. Frank Billings at its head. In addition, in the different divisions of the Medical Department, men of the highest rank are devoting special attention to it and are not only making theoretical plans, but are submitting these to the public in medical articles, both for the purpose of showing what is to be expected and of learning through criticism other points of view.

While at Fort Bayard Sanatorium developing his new diagnostic signs, Colonel Bushnell had associated with him for a number of years Lieut.-Col. E. H. Bruns, to whom are due some of the methods, notably the lagging of the expanding lung. At the outbreak of the war, Bruns became naturally associated with Colonel Bushnell in Washington and both have found time to devote special attention to the reconstruction of "soldiers wounded with tuberculosis." (*Journal of the American Medical Association*, August 3, 1918.)

The following from the Surgeon General's Office gives us our cue as to what is to be done. "Hereafter, no member of the military service disabled in line of duty will be discharged from the service until he has attained complete recovery or as complete recovery as is to be expected that he will attain when the nature of his disability is considered." (Colonel Bushnell: How the United States is Meeting the Tuberculosis War Problem. *The Military Surgeon*, August, 1918.) This indicates that the government intends to make the tuberculous patient as fit for work as possible before discharging him. To accomplish this the following tuberculosis hospitals have been taken over or have been built by the government.

The William Wirt Winchester Memorial Tuberculosis Hospital at New Haven, an absolutely new building just completed with a capacity of 250 beds and expanded by the erection of temporary buildings for ambulatory cases to a capacity of 550. This is a beautiful modern structure on the hills near New Haven and is at present used not only as a hospital but as a school for the instruction of student medical officers. This hospital and school are under the direction of Lieut.-Col. A. M. Forster, formerly medical director of Cragmoor Sanatorium, Colorado and Eudowood, Maryland, and the instructors in diagnosis in the school are Lieut.-Col. Estes Nichols, Major James Price and Captain Francis Trudeau.

The Otisville Sanatorium, New York, with a capacity of 750 beds, a recently erected temporary structure not far from the New York City Sanatorium.

The Azalea Sanatorium, North Carolina, with a capacity of 1,000 beds, also a temporary structure.

The Denver, Colorado, Sanatorium with a capacity of 1,000 beds, a new permanent structure of hollow tile, built in the most modern fashion.

Markleton Sanatorium, Markleton, Pennsylvania, with a capacity of 325 beds.

Waynesville Sanatorium, South Carolina, a hotel transformed, with a capacity of 260 beds.

Whipple Barracks Sanatorium, Arizona, with a capacity of 500 beds.

Fort Bayard Sanatorium, New Mexico, with a capacity of 1,000 beds. All of them have completely equipped laboratory, X-ray, surgical, throat, nose, ear, eye, and dental departments. In addition all are capable of further expansion.

In these sanatoria, the tuberculous soldier is to be taken care of by experts until he is well enough to pursue his ordinary occupation without fear of a breakdown, or if his condition has become such that his previous occupation is no longer possible, he will be instructed in an occupation suitable to his present capability. In these sanatoria, a special department of reconstruction has been instituted in which the capabilities of the men, from both a physical and mental aspect, are carefully considered and work assigned to them accordingly.

This work, begun when the patient's condition warrants it, is expected to have influence in four ways: (1) It will occupy the patient's mind, make him more contented and hence hasten his recovery; (2) instead of sending him out from a life of absolute ease, it will harden and make him less likely to breakdown, on account of unaccustomedness and strain; (3) the disease almost always produces more or less inefficiency, that is, after a certain amount of lung space is destroyed the individual is not as capable as before; the reconstruction department is endeavoring to compensate for this by educating him,—here for instance is a presser who knows nothing about tailoring, he is taught tailoring, thereby making him more useful to his employer; (4) foreigners and natives unable to read and write are taught. This improves their efficiency and gives opportunity for wider diversity of work and pleasure consistent with their condition.

Regulated work for convalescent tuberculosis patients is not new. It has been carried out in other sanatoria like White Haven, Pennsylvania, and Frimley, England, but never on a basis similar to this and never in connection with military discipline. We cannot help but expect, therefore, the best results possible in the government's treatment of its tuberculous soldiers.